Open Literature Review Summary

Chemical Name: Imidacloprid

CAS No: 138261413

MRID: 47699416

Record Number and Citation:

Maus Ch. & Schoning R. – "Effects of imidacloprid in maize from dressed seeds on honey bees (*Apis mellifera*)."

Summary of Study Findings:

This was a semi-field study was within compliance with good laboratory practices. Maize seeds were dressed with Gaucho WS 70 at an application rate of 40g a.i/ unit (50,000). The maize pollen was collected from the plants. Four field tents were erected to contain each of the hives, two control and two treated hives were each placed inside the tent. The honeybees were feed the imidacloprid treatment maize pollen and uncontaminated sunflower honey. The sunflower honey was provided as a carbohydrate source for all the test hives. The study duration was a total of 38 days. The endpoints evaluated were: morality, comb cell production, food consumption, storage behavior, increase in hive weight, egg laying activity, breeding success, colony strength, foraging intensity and behavior anomalies.

Average mean for foraging behaviors on maize pollen was minimal to foraging on sunflower honey. During the 35 days of feeding encounters; control A&B and treatment A&B bees visited the pollen 1, 15, 29, and 2 but visited the honey 267, 253, 274 and 255, respectively. The cumulative amount of honey in the hive, development of comb area, weight increase, population growth, and morality was comparable in all test groups. Pollen storages in control A and treatment B did not increase as steadily when compared with control B and treatment A groups.

Levels of quanititation were 0.005 mg/kg for imidacloprid and hydroxy-metabolite, 0.01mg/kg for olefin metabolite. Limit of detection was 0.0015 mg/kg for imidacloprid and hydroxy-metabolite, 0.003 mg/kg for olefin metabolite. In all the treated pollen the metabolites were below limit of detection and imidacloprid was below level of quantitation.

Rationale for Use:

Bees showed no effects when fed pollen that was grown in imidacloprid seed dressing.

Limitations of Study:

Sunflower honey was given as a substitute food supply. Pollen was not as strongly used as a food source when compared to the honey. Also, imidacloprid was not found in the pollen. The potential that no effects were seen could correlate with lack of exposure to imidacloprid and its metabolites.